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(56) Documents Cited

GB 2222812 A GB 1211168 A
GB 1193989 A WO 99/44901 A1
WO 98/40289 A1 WO 00/27717 A1

(58) Field of Search

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(54) Abstract Title

Bottle closure with capsule

(57) A bottle closure C comprises a screw-threaded or push-on cap 1 having an opening 6 and a frangible capsule 21 closing the opening, the capsule being adapted to rupture at a lower face 22 to allow addition of the capsule contents 24 to the bottle B. An upper face 23 of the capsule may be adapted to remain intact whilst the lower face 22 ruptures, and the upper and lower faces may be formed from plastics and metal foil or laminate materials respectively. The cap 1 may extend above the top of the capsule 21 and have a depending inner rim 7 and/or ribs 150 which abut and locate the capsule. The capsule may provide a fluid-tight seal between the bottle B and the cap 1, and an additional rupturable sealing membrane 11 may be provided beneath the capsule. In use, the capsule 21 is depressed in order to rupture its lower face 22, thereby expelling the capsule contents 24 into the bottle B. The capsule contents may be in tablet, powder, granular or other suitable form, and the closure may be used for the preparation of curatives e.g. analgesics or indigestion remedies.

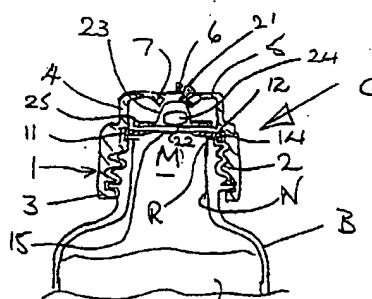


Figure 1

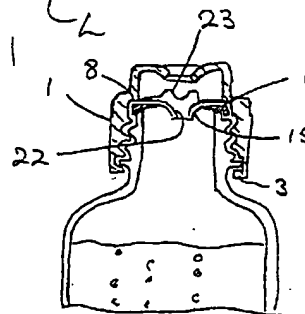


Figure 2

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The claims were filed later than the filing date but within the period prescribed by Rule 25(1) of the Patents Rules 1995.

At least one of these pages has been prepared from an original which was unsuitable for direct photoreproduction.

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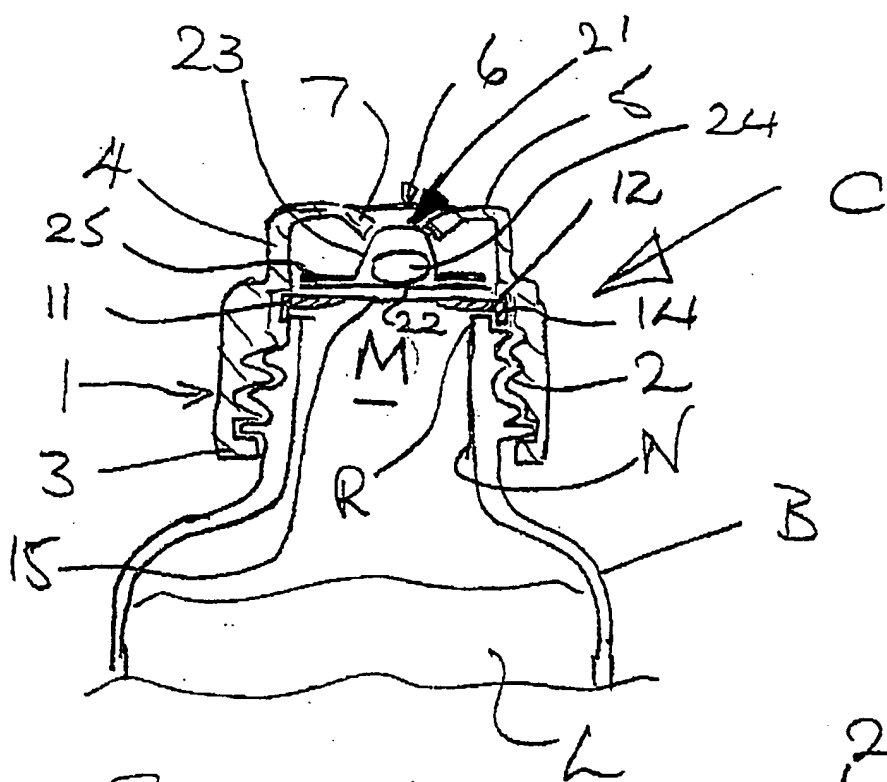


Figure 1

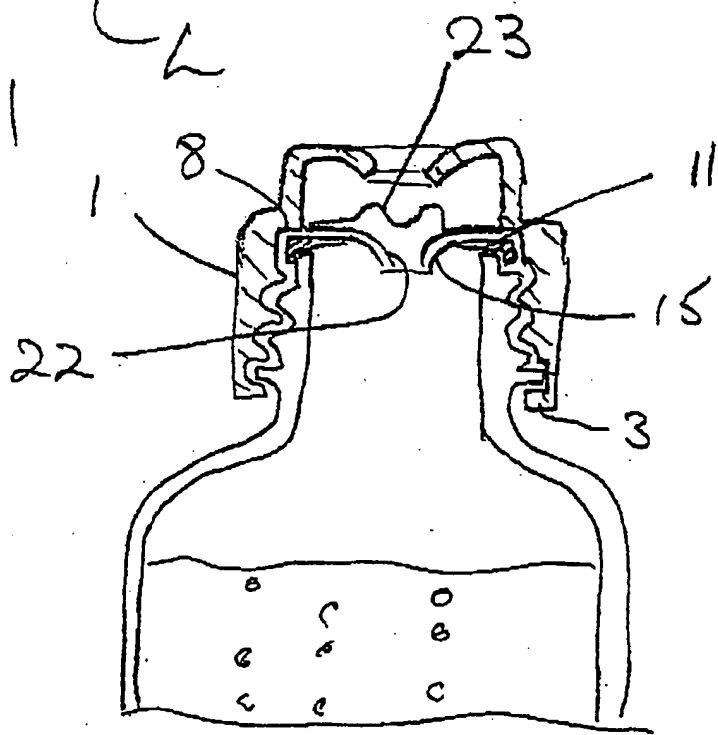


Figure 2

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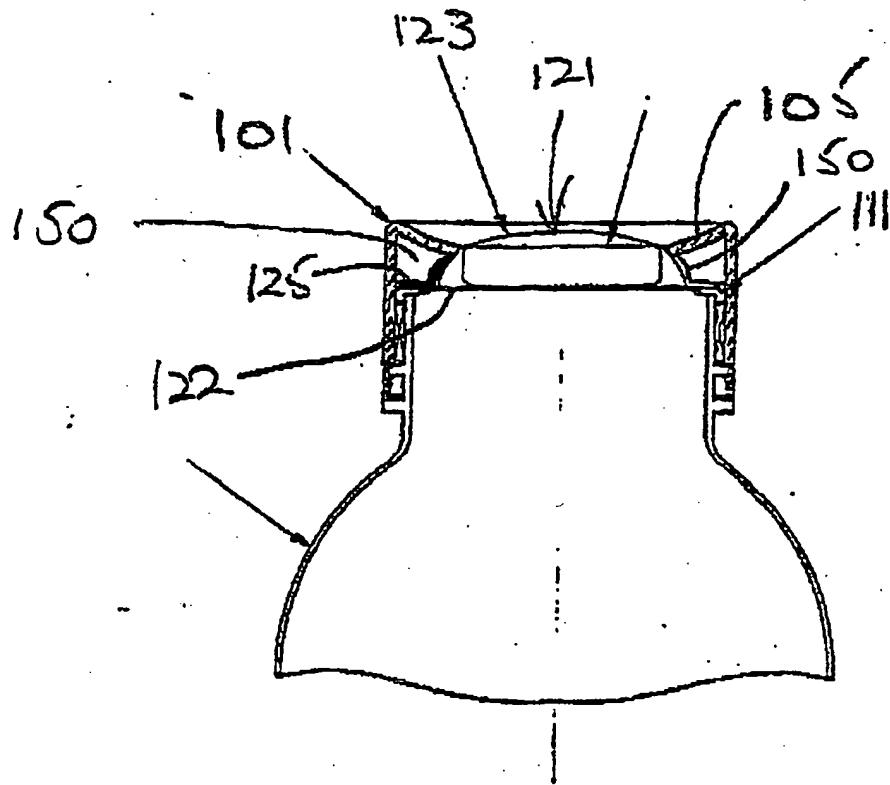


FIGURE 3

BOTTLE CLOSURE

The present invention relates to a bottle closure, in particular a bottle closure adapted to retain a substance for addition to the contents of a bottle.

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Certain curative drinks have a limited useful life and cannot be marketed in premixed form. They require mixture just before consumption.

The object of the invention is to provide a bottle closure facilitating such mixture in a bottle containing the liquid of the drink.

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According to the invention there is provided a bottle closure comprising:

- a moulded bottle neck gripping member, in the form of a ring adapted to grip the exterior of the bottle neck and an end having an opening,
- 15 • a frangible capsule closing the opening, the capsule containing a substance to be added to contents of the bottle and being adapted to be ruptured at an under face for addition of the substance to the contents with the ring gripping the bottle neck.

Preferably, an upper face of the capsule is adapted to remain intact on rupture of the under face. Conveniently this is achieved by making the upper face of plastics material and the lower face of metal foil or laminate material. Not only does this enable dispensing of the substance into the contents without touching of the substance, it also provides tamper evidence, by virtue of plastics upper face taking on a permanent set on depression for rupture of the lower face.

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For protection of the capsule against accidental dispensing, the gripping member preferably stands up from the mouth of the bottle above the top of the capsule and includes a depending inner rim, which abuts the top of the capsule. A series of radial ribs may be provided under the top, between the ring and the inner rim, for abutting and locating the capsule.

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It is envisaged that the capsule can provide fluid tight sealing between gripping member and the bottle, for enclosure of the contents. However, in the

preferred embodiment, an additional membrane seal is provided across the mouth of the bottle beneath the capsule. The seal is itself rupturable to allow the substance to pass into the bottle. Where the ribs are provided they can abut a peripheral lip of the capsule for holding it in sealing contact with the seal.

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The substance to be dispensed can be in tablet, powder, granule or other convenient form.

Typically the invention can be used in the preparation of analgesics and
10 indigestion remedies.

To help understanding of the invention, a specific embodiment thereof will now be described by way of example and with reference to the accompanying drawing, in which:

15 Figure 1 is a cross-sectional side view of a closure of the invention on a bottle prior to dispensing of a substance into the contents of the bottle;

Figure 2 is a similar view after dispensing; and

Figure 3 is a view similar to Figure 1 of another closure of the invention.

20 In the drawings, the closure C of the invention closes a conventional bottle B at its neck N. The bottle has liquid contents L.

The closure includes a neck gripping member 1 of moulded plastics member. As conventionally, the member has a screw thread 2 complementary with a screw
25 thread on the bottle neck and a tamper evidence feature 3. Above the screw thread, the member 1 has an annular upstand 4, which terminates in an in-turned, partial cover 5. This has a central opening 6, with a depending inner rim 7.

At the mouth M of the bottle – and at the junction between the upstand and the
30 threaded portion of the gripping member – the latter has an internal step 8. Captivated between the step 8 and the rim R of the bottle, a moulded plastics seal 11 closes the bottle, fluid-tightly retaining the contents C. The seal has a thick edge 12 with a flange 14 engaging the rim R and a thin central section 15. On this a capsule 21 is supported. This has a foil or laminate material lower face or membrane 22 and a

thermo-formed plastics upper face or membrane 23, which together fluid-tightly captivate an effervescent tablet 24. The depending rim 7 abuts the top of the upper membrane. The latter is drawn from a disc 25 of material which extends across at least part of the thicker portion 12 of the seal 11.

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In use, to add the tablet 24 to the liquid contents L of the bottle, the upper membrane 23 is pushed down, rupturing the foil 22 and the thin central section 15 of the seal. The tablet effervesces, mixing its substance with the contents L, to produce a curative drink. The neck gripping member 1 is unscrewed, breaking the tamper
10 feature 3 and bringing with it the seal 11 and the ruptured capsule by engagement with the threads of the screw 2.

The invention is not intended to be restricted to the details of the above described embodiment. For instance, the capsule can be secured to the seal, as by
15 adhesive, for more positive central location. The adherence can be localised to allow escape of gas – on effervescence – from within the bottle. Again, the seal can be dispensed with when the disc 25 extends over the over the bottle rim and is held in sealing contact with it by the step 8. Further, the bottle gripping member may be of the push-on as opposed to the screw-on type.

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In the embodiment of Figure 3, the gripping member 101 has beneath its partial cover 105 a series of radial ribs 150, which abut the upper membrane 123 of the capsule 121 before rupture. The ribs also abut the top of the disc of capsule material which extends as a lip 125 over the seal 111. In this embodiment, sealing of
25 the bottle is by the under face 122 of the capsule in co-operation with the seal 111. The seal has no central membrane. On rupture of the capsule, the lip 125 becomes deformed between the ribs 150, allowing escape of gas produced by the effervescence.

CLAIMS

1. A bottle closure comprising:
 - a moulded bottle neck gripping member, in the form of a ring adapted to grip the exterior of the bottle neck and an end having an opening,
 - 5 ◦ a frangible capsule closing the opening, the capsule containing a substance to be added to contents of the bottle and being adapted to be ruptured at an under face for addition of the substance to the contents with the ring gripping the bottle neck.
2. A bottle closure as claimed in claim 1, wherein an upper face of the capsule is adapted to remain intact on rupture of the under face.
- 10 3. A bottle closure as claimed in claim 2, wherein the upper face is of plastics material and the lower face is of metal foil or laminate material.
4. A bottle closure as claimed in claim 1, claim 2, or claim 3, wherein the gripping member preferably stands up from the mouth of the bottle above a top of the capsule and includes a depending inner rim, which abuts the top of the capsule.
- 15 5. A bottle closure as claimed in any preceding claim, wherein a series of radial ribs is provided under upstand, between the ring and the inner rim, for abutting and locating the capsule.
6. A bottle closure as claimed in any preceding claim, wherein the capsule provides a fluid tight sealing between gripping member and the bottle, for enclosure of the contents.
- 20 7. A bottle closure as claimed in any one of claims 1 to 5, wherein an additional membrane seal is provided beneath the capsule.
8. A bottle closure as claimed in claim 7, wherein the seal is rupturable to allow the substance to pass into the bottle.
- 25 9. A bottle closure as claimed in claim 7 or claim 8 as appendant to claim 5, wherein the ribs abut a peripheral lip of the capsule for holding it in sealing contact with the seal.
10. A bottle closure as claimed in any preceding claim, wherein the substance to be dispensed is in tablet, powder, granule or other convenient form.
- 30 11. A bottle closure substantially as hereinbefore described with reference to Figures 1 and 2, and Figure 3 of the accompanying drawings.



INVESTOR IN PEOPLE

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Claims searched: All

Examiner: Brendan Donohoe
Date of search: 17 August 2001

Patents Act 1977 Search Report under Section 17

Databases searched:

UK Patent Office collections, including GB, EP, WO & US patent specifications, in:

UK CI (Ed.S): B8D DSC1; B8T TRE, TWD, TWE, TWX.

Int CI (Ed.7): B65D 51/28

Other: Online: WPI, EPODOC, JAPIO

Documents considered to be relevant:

Category	Identity of document and relevant passage	Relevant to claims
X	GB 2222812 A (JANOWITZ) - See especially figures 1-3, and page 3 line 25 - page 5 line 12.	1, 2, 6 & 10
X	GB 1211168 (RICHARDSON-MERRELL) - See whole document.	1, 2, 6 & 10
X	GB 1193989 (L'OREAL) - See especially figures 1-6, page 1 lines 87-90, and page 2 lines 69-80.	1, 2, 6 & 10
X	WO 00/27717 A1 (COORY) - See especially figures 1-3 & 6-9, page 5 line 16 - page 6 line 18, and page 6 line 39 - page 7 line 6.	1-4, 6 & 10
X	WO 99/44901 A1 (SOUTH-CORP) - See especially figures 1-3, and page 6 line 11 - page 7 line 15.	1-3, 6 & 10
X	WO 98/40289 A1 (COORY) - See especially figures 5-8, and page 6 line 13 - page 7 line 30.	1, 4, 6 & 10

X	Document indicating lack of novelty or inventive step	A	Document indicating technological background and/or state of the art.
Y	Document indicating lack of inventive step if combined with one or more other documents of same category.	P	Document published on or after the declared priority date but before the filing date of this invention.
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